



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/114,973 07/14/98 DOVE

W 960296.95491

026734  
QUARLES & BRADY LLP

HM22/1107

FIRSTAR PLAZA, ONE SOUTH PINCKNEY STREET  
P.O. BOX 2113 SUITE 600

MADISON WI 53701-2113

EXAMINER

WOITACH, J

ART UNIT

PAPER NUMBER

1632  
DATE MAILED:

21  
11/07/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

**Office Action Summary**

Application No.

09/114,973

Applicant(s)

DOVE ET AL.

Examiner

Joseph Voitach

Art Unit

1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 10-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 26-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Application/Control Number: 09/114,973

Page 2

Art Unit: 1632

### DETAILED ACTION

Please note that the Examiner of record and art unit has changed. The Examiner of record is now **Joseph T. Woitach** and the group art unit is now **1632**.

This application filed July 14, 1998, is a continuation in part of application 08/751,292, filed November 18, 1996, now patent 5,780,236.

Applicant's amendment filed August 13, 2001, paper number 20 has been received and entered. Claim 1 has been amended. Claims 1-29 are pending.

### *Election/Restriction*

Claims 10-25 were withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 16. Applicant's traversal was fully considered and not found persuasive in the previous office action, paper number 18 (see arguments on page 2). The restriction was found proper and the requirement was made FINAL.

Applicant's new grounds of traverse in Paper No. 20 is acknowledged. The traversal is on the ground(s) that Group I and II should be rejoined because if group II, claim 10, were elected, a proper search for art would necessarily search for art relating to method steps recited in group I.

Art Unit: 1632

In addition, Applicant argues that it would be an substantial burden to pay additional filing fees and prosecution costs. See Applicants amendment, bridging paragraph on pages 5-6.

Applicant's arguments have been fully considered but not found persuasive.

This is not found persuasive because

The requirement is still deemed proper and is therefore made FINAL.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3-6, 8, 9 and 26 rejected under the judicially created doctrine of double patenting over claims 1-3 and 6 of U. S. Patent No. 5,780,236 since the claims is withdrawn.

Art Unit: 1632

Applicants argue that the method steps and resulting animals bred following said methods are substantially different. See Applicants' amendment, page 6. Applicants' arguments are found persuasive, and the rejection is withdrawn.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 stand rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for use of isogenic/index mice with defined murine genetic locus, does not reasonably provide enablement for any and all non-human animals. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicants argue that claims 26-29 are limited to use of isogenic mice strains, and given the limitations recited in the basis of the rejection, should not be included in this rejection. With regard to the breadth to other animals, Applicants argue that one can depend on the ability of the artisan to introduce mutations into the genome of inbred animals suitable for use in the claimed method. Further, it is argued that once a mutation is introduced, one could access whether a mutation is preserved through normal breeding protocols. It is reasoned that in view of the level

Art Unit: 1632

of skill in the art, the methods once shown to work in one species, an artisan should be able to extend the instantly claimed methods to other inbred species. See Applicants' amendment, pages 6-8. Applicants' arguments have been fully considered.

First, Examiner agrees that claims 26-29 are within the scope of enabled embodiments set forth in the basis of the rejection, and the rejection is withdrawn over these claims. With regard to the breadth, the instant claims require more than just inbred strains/lines of non-human animals. Rather, the claims require that an inbred strain have a point mutation relative to the wild-type animal, and that an index inbred strain have a congenic dominant allele at a locus known to confer the index phenotype and be genetically distinguishable from the founder strain (claim 1). As noted in Applicants' amendment, the power and desirability of the claimed method arises largely from the inability to know in advance the effect of a mutagen or point mutation on the phenotype conferred by an allele (page 7, bottom of the page). The nature of the invention requires a highly defined animal system wherein the index allele and resulting phenotype are very well established, so that upon mating with a second strain carrying a single point mutation, the resulting N1 generation can be assessed for effects on said phenotype. Examiner agrees the simple steps of crossing and backcrossing are within the level of skill in the art, however the specification fails to provide the needed guidance or evidentiary disclosure that index strains which can be affected by single point mutations exist. Given the working example in the instant specification, Examiner would agree that within a defined animal system of inbred mouse strains that single random point mutations could be assessed. Further, even though

Art Unit: 1632

defining a random mutation would involve a large amount of breeding and possible negative results, the working example provides the evidence that the methods could be practiced in inbred mice strains. However, no other inbred strains with index phenotypes are defined in the specification nor the art of record. Further, absent these strains, the inability to know in advance the effect of a mutagen or point mutation on a given index phenotype would then require undue experimentation to develop index strains which can be affected. Given the limited guidance or the instant disclosure, the great breadth of the instant claims and the unpredictability of art regarding genetics of other species of non-human animals, the specification fails to provide a nexus between using the claimed methods in a highly defined inbred mice strains and extending said methods for use in other non-human mammals.

Thus, for the reasons above and of record, in view of the of the lack of guidance, working examples, breadth of the claims, skill in the art and state of the art at the time of the claimed invention was made, it would have required one of skill in the art undue experimentation to practice the invention in the breadth in which it is claimed, and therefore, the rejection is maintained.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

Art Unit: 1632

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3-25 stand rejected under 35 U.S.C. 102(a) as being anticipated by Bilger *et al.*

Applicants argue that the animals crossed by Bilger do not meet the limitations set forth in claim 1, and that the differences in those mice result in substantially different products. Specifically, claim 6 recites that the strains share an isogenic genetic background. Claim 8 recites that the fonder strain carry a random point mutation, and that claim 9 requires a particular mutagen (specifically ethylnitrourea-ENS). See Applicants' amendment, pages 8-9. Applicants amendment has been fully considered, but not found persuasive.

First, it is noted that claim 1 only requires that the inbred strain contain a single point mutation, and is not limited to why or how the mutation is introduced. In the screening methods taught by Bilger *et al.* the AKR strain was shown to have a frame sift mutation that resulted in a truncated protein (pages 252-253; bridging paragraph). As such, this anticipates claims 1-5 and 26-29. With regard to claim 6, the AKR allele is introduced into the B6 genetic background through multiple generations of backcrossing (Page 252; top of second column), thus results in a inbred line with a mutation wherein said mouse has the same isogenic genetic background as the test strain, i.e. B6. With regard to claims 8 and 9, in the introduction, the authors describe the use of ENU to define the Min mutant in phenotypic screens (page 249; top of second column). The B6-Min mice represent a strain of mice which carry the Apc<sup>Min</sup> mutation. In the breeding protocol taught by Bilger *et al.*, the F1 B6Minx(other strains) are crossed, and then backcrossed



Art Unit: 1632

with B6 mice for the analysis of the resulting phenotype (summarized in Table 1). In view of the teachings of Bilger *et al.*, Applicants' arguments are found unpersuasive because the mice taught by Bilger *et al.* are encompassed by the breadth of , and thus, anticipate the instant claims.

Therefore, for the reasons above and of record, the rejection is maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Bilger *et al.* and Rinchik *et al.*

Claim 27 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Bilger *et al.* and Dietrich *et al.*

Applicants argue that for the reasons argued over Bilger *et al.* references in the 35 USC 102 rejection, that Rinchik *et al.* and Dietrich *et al.* can not be combined with Bilger to make

Art Unit: 1632

obvious claims 2 and 27. See Applicants' amendment page 9. Applicants' arguments have been fully considered, but not found persuasive.

As set forth above, given the breadth of the claims, and the teachings of Bilger *et al.* as a whole, the methods of claims 1 and 3-25 are anticipated. Rinchik *et al.* teaches the analysis and defining of genes by mutagenesis with ENU and specifically teach to use preserved gametes from genetic crosses because of the space limitations associated with generating progeny (page 897; second column). Dietrich *et al.* teach backcrossing to verify that outlying phenotypes is caused by a segregating mutation (page 251; second column through page 253; second column). Given the level of skill in the art, and the detailed guidance given in each reference for mutagenizing and defining a loci effect on a given phenotype/allele, it would have been prima facie obvious to combine the teachings of Bilger *et al.* with Rinchik *et al.* and Dietrich *et al.* to make obvious claims 2 and 27, respectively. Therefore, for the reasons above and of record, the rejection is maintained.

### ***Conclusion***

No is claim allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

a shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 1632

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Woitach, whose telephone number is (703) 305-3732.

If attempts to reach the examine by telephone are unsuccessful, the examiner's supervisor, Karen Hauda, can be reached on (703) 305-6608.

An inquiry of a general nature or relating to the status of the application should be directed to Kay Pinkney whose telephone number is (703) 305-3553.

Joseph T. Woitach

*Deborah Crouch*  
DEBORAH CROUCH  
PRIMARY EXAMINER  
GROUP 1800/1630